ETH Workshop

Measuring, Modeling and Mitigating Opinion Polarization and Political Cleavage (MMM)

When: 13 - 15 September 2023 (Wednesday-Friday)

Where: ETH Zurich, Lecture Hall ML E12, ML Building, Tannenstrasse 3, 8006 Zürich

Organization: Dr. Laurence Brandenberger, Chair of Systems Design, ETH Zürich
Prof. Frank Schweitzer, Chair of Systems Design, ETH Zürich

Funding: Swiss National Science Foundation (SNSF Grant No: IZSEZ0_220344)
Chair of Systems Design (ETH Zürich)

Synopsis

Political polarization and radicalization is more and more seen as a major threat for democratic countries, with alarming consequences. Therefore, research on this topic has vastly increased in different scientific disciplines. But the scientific discourse lacks an integrative perspective on polarization, merging methods and insights from different disciplines. Even more, we miss the exchange between formal modelers, political scientists and sociologists which only would allow to develop such a common perspective.

Our workshop shall fill this gap, bringing together an interdisciplinary group of top scientists, to foster awareness, acceptance, and adoption of insights from the respective disciplines. Contributions revolve around three interlinked topics:

1. **Public opinion and opinion dynamics**
   - Polarization: ideology vs. issue stances
   - Opinion dynamics: Mechanisms behind polarization dynamics
   - Measuring Polarization: Moving beyond single dimensions
2. **Elite polarization**
   - Measuring latent concepts: mapping ideology in a political space
   - Political gridlock: Studying collaboration dynamics in polarized systems
   - In-group vs. out-group: Studying group division strategies
3. **Mitigation and mechanism design**
   - Opinion formation and change: Mechanism design and mitigation strategies
   - Populism as a dividing mechanism

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Program and Abstracts

Wednesday, 13 September 2023

09:30-09:50 **Frank Schweitzer** (ETH Zürich)

Welcome and Introductory Remarks

Polarization is studied in different disciplines. For the workshop, we aim at combining research on that topic from computational social science and political science, sociophysics and complexity science.
Each of these disciplines provides a unique perspective: Social and political scientists discuss the reasons and consequences for increasing polarization on various levels of society. Political scientists, in particular, study how this dynamics manifests itself in parliamentary processes, with the US Congress as a prime example. Computational social scientists approach the topic from a data science perspective, analyzing data from social media, mostly from Twitter. Using tools from machine learning (NLP, sentiment analysis) they also aim at measuring the level of polarization. Scientists from sociophysics and complexity science provide formal models for the dynamics of polarization, most often agent-based models and network models. These models allow to define polarization measures and to study mechanisms that increase, but also mitigate, polarization.
A deeper understanding of the multifaceted phenomena of polarization and cleavage requires that computational social scientists and complexity scientists engage more in political research. Conversely, social and political scientists need to be aware of the quantitative methods and formal models to measure polarization, beyond established surveys. The existing research gap manifests itself between disciplines, but also between scientific communities. Conferences or workshops, that succeed in bringing these communities together are rare. The discourse is siloed in disciplinary activities. To break up such silos requires scientific translators, i.e. researchers with an experience in communicating with different scientific communities.
This workshop shall foster the interaction, and hopefully also the collaboration, between scientists from different communities. It receives financial support from the Swiss National Science Foundation (SNSF) (Grant No: IZSEZ0_220344) and from the Chair of Systems Design (ETH Zurich). This allows us to continue, at a smaller scale, organizing scientific events relevant for political and computational social sciences. Our last symposium on Polarization and Radicalization took place at ETH Zurich in 2019 and attracted 200 international participants. Our workshop also complements our different ongoing research projects for analyzing social and political data sources, funded either by the SNSF or the Swiss Data Science Center (SDSC).

09:50-10:30 **Introduction of Participants**

10:30-11:00 **Coffee Break**

11:00-12:30 **Session: Polarization as a Threat to Democracy?**
Chair/Discussant: Philip Leifeld (University of Essex)

11:00-11:25 **Markus Wagner** (University of Vienna)

Do left-wing governments fuel far-right success?

In the last decades support for the far right has surged in countries all over the world. One of the explanations of this success alludes to voters' reaction to the policies implemented by mainstream parties, although it is unclear which are more likely to fuel their advance. In this paper we investigate the causal effect of the partisanship of the incumbent government on the electoral results of far-right parties. To do that, we use a threefold empirical strategy, combining cross-country over time comparative data, quasi-experimental RDD evidence in the case of Spain, and individual-level survey data to test the mechanisms behind the main effect.
Overall, our results provide support for the thesis that radical-right success is the result of a backlash against left-wing governments and policies. The implications of these findings are important for democratic politics, as they raise the question of whether mainstream parties can do something to avoid this backlash or, rather, it is an inescapable consequence of how political competition in democracies works.

11:45-12:05 **Katarzyna Sznajd-Weron** (Wroclaw Univ. of Science and Technology)

Depolarizing effect of strategic anticonformity – insights from the three-state q-voter model with bounded confidence

Engaging with dissenting views, fostering productive disagreements, or strategic anticonformity can bring benefits to organizations by challenging the status quo. However, a key question arises regarding whether such strategic anticonformity ultimately leads to social polarization, which is an undesirable outcome. Previous research in computational social science indicates that conformity combined with homophily enhances polarization, while anticonformity towards dissimilar individuals further escalates it. However, it is worth noting that anticonformity is not limited to dissimilar individuals and can manifest in various forms, one of which is asserting uniqueness. This form of anticonformity, which can be used strategically, is the focus of our work. Our aim is to answer the question of whether local anticonformity, in the form of asserting uniqueness, can lead to a global consensus. In this talk, we will present the first part of our ongoing project, which answers the above question within the three-state q-voter model with anticonformity and bounded confidence. The model analysis is conducted on different networks, including a complete graph (Lipiecki & Sznajd-Weron, 2022), as well as networks with two-community structures, and empirical datasets such as the Enron email network and the GitHub social network (Lipiecki & Sznajd-Weron, 2023). The results obtained from analyzing the model on various networks consistently support the conclusion that strategic anticonformity in the form of asserting uniqueness can indeed lead to a global consensus by depolarizing society. This finding highlights the potential of local disagreements to facilitate broader consensus. By leveraging strategic anticonformity, organizations can promote constructive dialogue, ultimately leading to a more cohesive and consensus-driven society.
Acknowledgment: This research was funded by the National Science Center (NCN, Poland) through grant no. 2019/35/B/HS6/02530.

12:30-14:00 **Lunch Break**

14:00-15:30 **Session: Mechanisms Behind Polarization Dynamics**
Chair/Discussant: Rainer Hegselmann (Frankfurt School of Finance)

14:00-14:25 **Janusz Holyst** (Warsaw University of Technology)

Why can't we go back to paradise?

According to the structural balance theory a social network is in an equilibrium state when it is divided into two communities and there are friendly links inside communities and hostile links between them. Then rules "friend of my friend is my friend" and "enemy of my friend is my enemy" etc are fulfilled. Such a configuration corresponds to the social polarization and can be a result (for example) of segregating ideologies or opposing interests existing in both communities. A social equilibrium can exist also as a "paradise" state when only friendship links exist. The paradise state is however rarely observed and during the lecture I will discuss possible reasons for this.
The first example will be the case when social agents do not possess any attributes but connecting links are binary variables that are described by Ising model with three spins interactions and the system is in a thermal bath corresponding to a social noise. Then if an initial state consists of all positive links, the paradise state can be preserved provided the level of this noise is below some critical value. When crossing the critical point, one observes a discontinuous and irreversible phase to a disordered and unbalanced state with the equal number of positive and negative links but without a division into two hostile cliques. When initial conditions for links polarities are random then for low values of social noise there is a bipolar state of two mutually hostile cliques.
The second example will be the case when every agent possesses G attributes, they can evolve in time to obey rules of the structural balance. Then for the group of N agents the paradise state can appear only if G > O(N2) and when the parameter describing the willingness for consensus is high enough. When these conditions are not met then the system stays in quasi-stationary states that can be far from the paradise.
I will show also that effects of the structural balance in a data set received from the NetSense experiment are empirically measurable when signs of edges are defined by multidimensional differences between opinions on all topics. Yet, when these signs are defined by a difference between opinions on each topic separately, the triadic interactions' influence is indistinguishable from noise. Finally, a general model for how attributes can reduce polarization in social groups will be studied and it will be shown that the while it is easier to prevent than to destabilize polarization, we find that usually the most effective at both are continuous attributes, followed by ordered attributes and, finally, binary attributes.

14:45-15:05 **Jan Lorenz** (Constructor University Bremen)

How assimilative and idiosyncratic attitude change generate oscillations of public policy mood

The ideological attitudes of the general public in the US show two characteristics in their temporal evolution. When measured by self-identification, the distribution stays almost constant with a large moderate peak and a tendency for smaller and blurred liberal and conservative peaks. When conceptualized and measured as public policy mood instead, they oscillate almost regularly. We reproduce both phenomena in an agent-based model. In the model, agents repeatedly adjust their position either idiosyncratically but more often through assimilative attitude change towards the positions of others whenever these positions are within a latitude of acceptance. Stable distributions similar to real-world data occur under homogeneous latitudes of acceptance and a small but sizable inflow of idiosyncratic attitudes. In contrast, the median attitude oscillates similar to public policy mood with less idiosyncrasy and heterogeneous latitudes of acceptance. The model points towards endogenous mechanisms driving political attitude formation in the general population.

15:30-16:00 **Coffee Break**

16:00-17:30 **Session: Mitigating (Online) Polarization**
Chair/Discussant: Sophia Schlosser (ETH Zürich)

16:00-16:25 **David Garcia** (University of Konstanz)

Unpacking polarization: Antagonism and Alignment in Signed Networks of Online Interaction

Online polarization research currently focuses on studying single-issue opinion distributions or computing distance metrics of interaction network structures. Limited data availability often restricts studies to positive interaction data, which can misrepresent the reality of a discussion. We introduce a novel framework that aims at combining these three aspects, content and interactions, as well as their nature (positive or negative), while challenging the prevailing notion of polarization as an umbrella term for all forms of online conflict or opposing opinions.
In our approach, built on the concepts of cleavage structures and structural balance of signed social networks, we factorize polarization into two distinct metrics: Antagonism and Alignment. Antagonism quantifies hostility in online discussions, based on the reactions of users to content. Alignment uses signed structural information encoded in long-term user-user relations on the platform to describe how well user interactions fit the global and/or traditional sides of discussion. We can analyse the change of these metrics through time, localizing both relevant trends but also sudden changes that can be mapped to specific contexts or events.
We apply our methods to two distinct platforms: Birdwatch, a US crowd-based fact-checking extension of Twitter, and DerStandard, an Austrian online newspaper with discussion forums. In these two use cases, we find that our framework is capable of describing the global status of the groups of users (identification of cleavages) while also providing relevant findings on specific issues or in specific time frames. Furthermore, we show that our four metrics describe distinct phenomena, emphasizing their independent consideration for unpacking polarization complexities.

16:45-17:05 **Gerardo Iniguez** (Central European University Vienna)

Algorithmic bias and multidimensional political polarisation in online social networks

Political polarization in online social networks is a rapidly growing phenomenon worldwide, happening within a pervasive, variable, and mostly hidden ecosystem of content filtering technologies that determine what information we see online. Despite the relevance of algorithms and opinion formation mechanisms to modern-day political discourse, the structure and dynamics of polarized states in digital spaces are still poorly understood.
In this talk I'll introduce a general theoretical framework to systematically link models of opinion dynamics, social network structure, and content filtering, allowing us to pinpoint what type of social interactions are robust against algorithmic bias, and which ones are susceptible to bias-enhanced opinion polarization. I'll also introduce a framework of ideological embedding and opinion dynamics modelling that uncovers multidimensional political polarization in Twitter.
Together, our results shed light on the social behaviors that drive digital platforms towards polarization, and give theoretical ground for the development of heuristics to tackle harmful effects of online bias, such as information bottlenecks, echo chambers, and opinion radicalization.

18:30-21:30 **Conference Dinner**
Restaurant Linde, Universitätstrasse 91, 8006 Zürich

Thursday, 14 September 2023

09:00-10:30 **Session: Belief Heterogeneity**
Chair/Discussant: Marco Steenbergen (University of Zürich)

09:00-09:25 **Philip Leifeld** (University of Essex)

Tracing the Sources of Belief Contestation in Policy Debates

Political actors agree or disagree with other actors on policy beliefs. When aggregated into a policy subsystem, advocacy coalitions with distinct belief systems emerge from actors' individual policy belief portfolios. Discourse network analysis measures coalitions by considering actors' stated beliefs. But policy beliefs differ in how important they are in structuring coalitions. To understand the ideational "glue" that binds coalitions together or keeps them apart in any given subsystem, we must identify the joint subset of beliefs that is structurally most important for the coalition structure. We call this subset the backbone of a policy debate and distinguish it from its complement, the set of redundant beliefs. To identify the backbone and redundant set, we introduce a penalized spectral loss function and a custom simulated annealing algorithm to identify the backbone and redundant belief sets by combinatorial optimization. The approach is illustrated using the discourse network of German pension politics.

09:45-10:05 **Eckehard Olbrich** (MPI for Mathematics in the Sciences Leipzig)

Do we need more than one dimension to understand polarization?

It seems natural to think about about polarization along an one-dimensional spaces, i.e. along a single axes or between two groups, respectively. In my contribution I will discuss, why this might not be sufficient and how to work in higher dimensional spaces. In particular, I will discuss this problem in the context of cleavage theory and the hypothesis that the populist right parties that appeared in Europe in the last decades are part of a new cleavage. As an example I will discuss data from Swiss public votes between 1981 and 2018.

10:30-11:00 **Coffee Break**

11:00-12:30 **Session: Changing Opinions**
Chair/Discussant: Georges Andres (ETH Zürich)

11:00-11:25 **Ali Faqeeh** (Aalto University Helsinki)

Political polarization: Persistent hatred or issue-dependent sidings?

In our recent work, we designed two approaches to investigate polarization patterns in political and social platforms. These approaches offer two measures, rigidity and alignment, to quantify the intensity of consistency in polarization patterns from two different aspects; this is used to demonstrate to what extent the polarization in opinions might be independent of ideology and basically the issue or the policy domain at hand, and instead it is derived by fixated antagonism or partisanship.
We show the patterns of rigidity and alignment in the data for the parliamentary systems of several countries and argue that periods of highly aligned/rigid and highly polarized political systems can exist which can harm responsible and constructive policy-making and social discourse. This type of high rigidity/alignment regime has existed across various policy domains and even more intensely within different policy domains across the casted votes of those domains. We also show that although different countries show more or less similar rigidity patterns, they differ in towards which topics the members of the parliament are more rigid.

11:45-12:05 **Tanzhe Tang** (University of Groningen)

An Empirical and Simulation Investigation of Bounded Confidence and Negative Influence in Opinion Dynamics using Stochastic Actor-Oriented Model

Classic opinion dynamics models of assimilation fail to shed light on opinion clustering and polarization. Two micro-processes of social influence, bounded confidence and negative influence, have been proposed as solutions. Empirical evidence for bounded confidence and negative influence is debatable. Two common drawbacks in existing empirical studies are (1) lab experiments that lack external validity; and (2) model designs that do not allow disentangling negative influence from bounded confidence, as well as other social influence mechanisms. In this study, we focus on assessing empirically in a field-setting the evidence for opinion changes being driven by bounded confidence and negative influence, while controlling for additional simultaneous mechanisms identified by earlier field research.

We employ the Stochastic Actor-Oriented Model (SAOM) to analyse The Arnhem School Study (TASS) data, a longitudinal dataset that tracks adolescents' social networks and opinions' evolution. Two new SAOM effects were developed: the p-near similarity and q-far similarity effects, capturing the influence of all others in the group (irrespective of friendship ties) whose opinions are sufficiently similar or dissimilar, given the thresholds p and q respectively, allowing us to test the assumptions of bounded confidence and negative influence.

Results show that for the preferences of rap and hip-hop clothing style (ranging from 1 – dislike, to 5 – like), a model including both bounded confidence (threshold = 1) and negative influence from relatively dissimilar others (threshold = 3) provides a good fit to the data and gives a good empirical representation of the development over time of the shape of the opinion distribution as well as opinion polarization. The q-far similarity effect (with q=3) is statistically significant, providing strong empirical evidence for negative influence while no strong evidence for bounded confidence is found.

12:30-14:00 **Lunch Break**

14:00-15:30 **Session: Measuring Polarization Beyond Single Dimensions**

Chair/Discussant: Gerardo Iniguez (Central European University Vienna)

14:00-14:25 **Marco Steenbergen**/ **Jelle Koedam** (University of Zürich)

Multidimensional party polarization in Europe: Cross-cutting divides and effective dimensionality

Ideological polarization matters. It is a necessary requirement for meaningful electoral competition, but at its extreme can strain democratic functioning. The conceptualization and measurement of contemporary ideological polarization is complicated by the growing complexity of the policy differences between political parties. Yet, existing indicators remain one-dimensional in nature, despite the wide acceptance of the multidimensional structure of European politics.

To resolve this tension, we introduce a novel, two-dimensional measure of party polarization. Using the correlation matrix of parties' ideological positions, we calculate the effective dimensionality of a political space, which accounts for the degree to which the dimensions crosscut each other. We highlight the advantages of this approach with both artificial data and positional estimates derived from the Chapel Hill Expert Survey (1999-2019).

Then, we explore the empirical implications of our multidimensional measurement strategy, and show that it is better suited to capture the relationship between party polarization and mass partisanship. This study has important theoretical, methodological, and normative implications for our understanding of democratic representation in a changing political landscape.

14:45-15:05 **Sophia Schlosser** (ETH Zürich)

A Textual Time Capsule: A Text-Based Approach to Tracing Swiss Elite Polarization Across 130

Increased polarization has long been lamented as a sign of democratic instability and erosion. It is a phenomenon constantly postulated to have increased in the past few decades. However, this has yet to be studied over a prolonged period, and Switzerland is no exception. Thus, we ask whether this claim still holds when studying polarization over the past 130 years in the Swiss parliament.
To achieve this, we employ text embeddings to compute multi-dimensional representations of Swiss parliament members based on the legislative bills introduced, from 1891 to today. We build upon the SwissBERT model, a Switzerland-specific model based on the XMOD architecture. Furthermore, to enhance the model's understanding of language structure and context, we fine-tune SwissBERT using masked language modeling (MLM) on parliamentary texts, encompassing speeches and bill texts. Additionally, we train the embeddings to predict party class. Finally, we employ a multi-dimensional variance-based polarization measure to study polarization trends in the Swiss Parliament over 120 years. Our findings indicate that, while polarization has indeed increased, this trend began in the 1970s and reached its peak in the 1990s.

15:30-16:00 **Coffee Break**

16:00-17:30 **Session: Inferring Opinions and Reconstructing Relations**
Chair/Discussant: Katarzyna Sznajd-Weron (Wroclaw University of Science and Technology)

16:00-16:25 **Rosa Benito** (Universidad Politecnica de Madrid)

Polarization Metrics and Opinions Inference in Multipolar Systems

Based on the idea that a population is perfectly polarized when divided in two groups of the same size and contrasting opinions, we propose a general methodology to study and measure the emergence of polarization from social interactions.
We will present polarization metrics to opinion distributions. In particular, we propose the polarization index for bipolar systems. This metric is very restrictive since the maximum value is only achieved when the two conditions (groups of the same size and with contrasting opinions), are fulfilled. It was applied to measure the political polarization in several dichotomous Twitter conversations finding a good agreement between our results and offline data. In particular, we analyzed a Venezuelan case, the second round of the 2017 Chilean elections, and the Catalan Independence issue. For the case of multipolar opinion distributions, we present the trace of the covariance matrix (the total variation) as a global polarization metric. This metric achieves the maximum value when there are only extreme opinions and they are uniformly distributed among all poles. Accordingly, in a similar way to the polarization index, it not only measures how extreme the opinions are but also how evenly is the population divided into the considered factions. In order to further characterize the polarization of multipolar systems, we carry out a principal components analysis to identify the directions of maximum polarization. We will present several case studies corresponding to tetra polar and pent polar electoral campaigns showing that this framework unveils the natural ideological axes of the system.
We also present a method to infer opinions in multidimensional contexts through networks of interactions based on an extension of the DeGroot learning process [1, 3]. To do this, we first introduce a generalization to the ideological space of multipolar systems with n opinion poles modeled by placing each pole (for example, the parties in a multi-party democracy) at the vertex of a regular simplex of dimension n-1 (a multidimensional generalization of an equilateral triangle, which would correspond to a tripolar system). This way every pole is at the same distance of the others, avoiding the introduction of a priori biases. By applying this methodology to empirical Twitter data from multi-party Spanish general elections, we find that the main axis of polarization is the left-wing / right-wing split. However, our most striking finding comes from the secondary axes of polarization, as they reveal non-trivial tensions specific to each system. These tensions can be understood in terms of the underlying socio-political context.

16:45-17:05 **Georges Andres** (ETH Zürich)

Reconstructing signed relations from interaction data

Positive and negative relations play an essential role in human behaviour and shape our communities. Polarization in the internal structure of these communities strongly affects their functioning. Imagine a community where two groups of individuals have positive relations within but negative relations across the groups. While such a polarized setting is stable according to structural balance theory, it may hinder constructive dialogue, foster division, and impede collective problem-solving.
To understand if a community is polarized in its relational structure, it is imperative to possess data on the signs of the relations. Unfortunately, such data is rare and commonly gathered through surveys. Conversely, interaction data is more abundant, for instance, in the form of proximity or communication data. We show how the underlying signed relations in communities can be extracted from interaction data.
Employing a statistical network approach, we infer signed relations using interaction data for five social systems and reconstruct their signed networks. Subsequently, we leverage the reconstructed signed networks to study group cohesion and structural balance. Finally, we establish a connection between these concepts and the emergence of polarization in social systems.

17:30 **Daily Closing**

Friday, 15 September 2023

09:00-10:30 **Session: Co-Evolution of Relations and Opinions**
Chair/Discussant: Ramona Roller (ETH Zürich)

09:00-09:25 **Andreas Flache** (University of Groningen)

When contact backfires, and when it does not. A social influence model of the dynamics of affective polarization

Concerns about increasing affective polarization have renewed interest in interpersonal intergroup contact as a possible remedy against mutually negative outgroup attitudes in society. Recent research increasingly recognizes that individual intergroup contact is but one element in a larger set of interacting processes that occur in interpersonal social interactions both within and between groups.
Advancing earlier work (Flache, 2018), we present a computational agent-based model of the dynamics of intergroup attitudes that encompasses interpersonal intergroup contact as one element, but adds that attitudes towards groups are also socially influenced by ingroup-peers, that the interpersonal relations through which contact and social influence occur are themselves subject to network changes, and that attitudes towards the own and other groups are interconnected.
We explore theoretically a set of possible threats to the positive effects of intergroup contact. On the bright side, we find that intergroup interactions improve attitudes towards outgroups even if there is relatively strong structural xenophobia, an initial bias against the outgroup, and homophily in network relations. But our model also suggests that interaction between groups can induce affective polarization in terms of increasingly negative outgroup attitudes and increasingly positive ingroup-attitudes.
Yet, affective polarization is mitigated when improved intergroup attitudes have a more immediate social impact, increasing chances for between-group encounters and reducing chances that these encounters are negative. Model analyses finally imply that initial ingroup-critics from different groups may unite and become critical of all groups in a society, potentially undermining positive effects of contact on outgroup attitudes.

09:45-10:05 **Michel Grabisch** (Université Paris 1 Panthéon-Sorbonne)

On the design of public debate in social networks

We propose a model of the joint evolution of opinions and social relationshipsin a setting where social influence decays over time. The dynamics are based on bounded confidence: social connections between individuals with distant opinionsare severed while new connections are formed between individuals with similar opinions. Our model naturally gives raise to strong diversity, i.e., the persistenceof heterogeneous opinions in connected societies, a phenomenon that most existingmodels fail to capture.
The intensity of social interactions is the key parameter thatgoverns the dynamics. First, it determines the asymptotic distribution of opinions.In particular, increasing the intensity of social interactions brings society closer toconsensus. Second, it determines the risk of polarization, which is shown to increasewith the intensity of social interactions. Our results allow to frame the problem of the design of public debates in a formal setting. We hence characterize the optimal strategy for a social planner who controls the intensity of the public debateand thus faces a trade-off between the pursuit of social consensus and the risk of polarization. We also consider applications to political campaigning and show that both minority and majority candidates can have incentives to lead society towards polarization.

10:30-11:00 **Coffee Break**

11:00-12:30 **Session: Mechanism Design and Polarization Mitigation**
Chair/Discussant: Laurence Brandenberger (ETH Zürich)

11:00-11:25 **Natasha Wunsch** (University of Fribourg)

Democratic backsliding, attitudes towards democracy and affective polarization

Affective polarization and partisanship have been posited as a key explanation for citizens'tolerance towards democratic backsliding, with voters more likely to overlook democratic violations conducted by in-party candidates. Our study adopts a novel perspective on this relationship: focusing on the role of the opposition, we contend that backsliding may crystallize anaffective dislike among opposition supporters towards the governing party and its supporters that stems from a regime divide over democracy itself. To explore this argument, we leverage original survey data collected in Hungary and Poland. Our results point to a government-opposition divide in partisan affect and show how liberal democratic attitudes, especially among opposition party supporters, play into this dynamic. We submit that where backsliding persists over a longer period, this process can shift even multi-party systems towards increasing bipolarity along what we term a 'democratic divide.' Ultimately, our findings suggest that affective polarization may play a positive role in backsliding contexts by uniting the opposition around the defense of democracy.

11:45-12:05 **Rainer Hegselmann** (Frankfurt School of Finance & Management)

Polarisation in the bounded confidence model: A revised view

The bounded confidence model (BC model) is a very simple model: Period by period, all agents average over all opinions that are no further away from their actual opinion than a given distance epsilon, their 'bounded confidence'. It was introduced by Hegselmann and Krause in [2002].
According to the analysis at that time, it appeared that BC processes monotonically lead to a decreasing number of final clusters as the confidence interval (given by epsilon) increases. At a certain size of the confidence interval, a polarisation phase appeared. Furthermore, it was shown that the polarisation effect becomes stronger for non-symmetrical confidence intervals (leftists listen more to the left, rightists listen more to the right).
However, our approach at the time (random starting distributions, repeated runs, then some statistics) obscured the fact that the transition from plurality to polarisation to consensus is by no means monotonic.
In retrospect, it is very clear that we completely missed a crucial feature of our model back in [2002]: For increasing values of epsilon, our analysis then suggested smooth transitions in the model's behaviour. In fact, the transitions are wild, chaotic and non-monotonic - as discovered and described by Jan Lorenz in [2006]. The most dramatic example of such effects is a consensus that breaks down for larger values of epsilon.
My talk will present a rather fundamental new approach to analysing the BC model. The new approach makes the non-monotonicities in the polarisation/consensus transition of the BC model unmissible.

12:30-12:45 **Frank Schweitzer** (ETH Zürich)

Closing and Farewell